

# SE MRC College Algebra Content Review

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## Linear Functions and Slope Section 2.3

### Learning Objectives:

1. Calculate a line's slope.
  2. Write the point-slope form of the equation of a line.
  3. Write and graph the slope-intercept form of the equation of a line.
  4. Graph horizontal and vertical lines.
  5. Recognize and use the general form of a line's equation.
  6. Use intercepts to graph the general form of a line's equation.
  7. Model data with linear functions and make predictions.
2. Find the slope of the line passing through the points given below or state that the slope is undefined. Then indicate whether the line through the points rises, falls, is horizontal, or is vertical.  
  
 $(1, -5)$  and  $(-8, -5)$

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1. Find the slope of the line passing through the points given below or state that the slope is undefined. Then indicate whether the line through the points rises, falls, is horizontal, or is vertical.  
  
 $(4,2)$  and  $(5,6)$

3. Find the slope of the line passing through the points given below or state that the slope is undefined. Then indicate whether the line through the points rises, falls, is horizontal, or is vertical.  
  
 $(1,3)$  and  $(3,9)$

4. Find the slope of the line passing through the points given below or state that the slope is undefined. Then indicate whether the line through the points rises, falls, is horizontal, or is vertical.

$(-1,1)$  and  $(-1,3)$

6. Use the given conditions to write an equation for the line in point-slope form and slope-intercept form.

Slope =  $-7$ , passing through  $(-1, -2)$

5. Write the point-slope form of the line's equation satisfying the given conditions. Then use the point-slope form of the equation to write the slope-intercept form of the equation.

Slope =  $3$ , passing through  $(5,4)$

7. Write the point-slope form of the line satisfying the given conditions. Then use the point-slope form of the equation to write the slope-intercept form of the equation.

Passing through  $(1,3)$  and  $(5,15)$

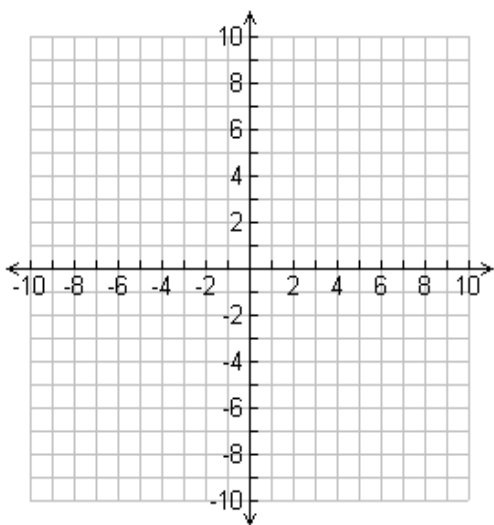
8. Use the given conditions to write an equation for the line in point-slope form and slope-intercept form.

Passing through  $(-4, -1)$  and  $(4, 13)$

9. Give the slope and they-intercept of the line with the given equation. Then, graph the linear equation.

$$y = 3x + 6$$

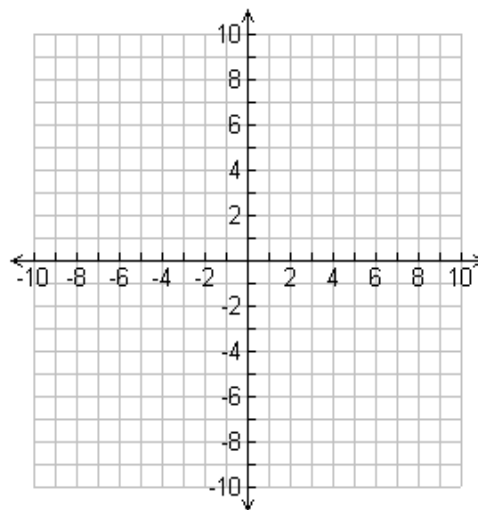
- The slope of the line is \_\_\_\_\_.
- The y-intercept of the line is \_\_\_\_\_.
- Graph the linear equation.



10. Give the slope and y-intercept of the line whose equation is given below. Then graph the linear function.

$$y = \frac{2}{9}x - 1$$

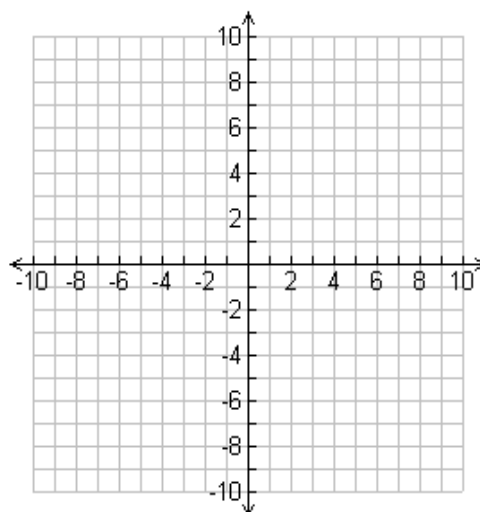
- The slope of the line is \_\_\_\_\_.
- The y-intercept of the line is \_\_\_\_\_.
- Graph the linear equation.



11. Give the slope and y-intercept of the line whose equation is given below. Then graph the linear function.

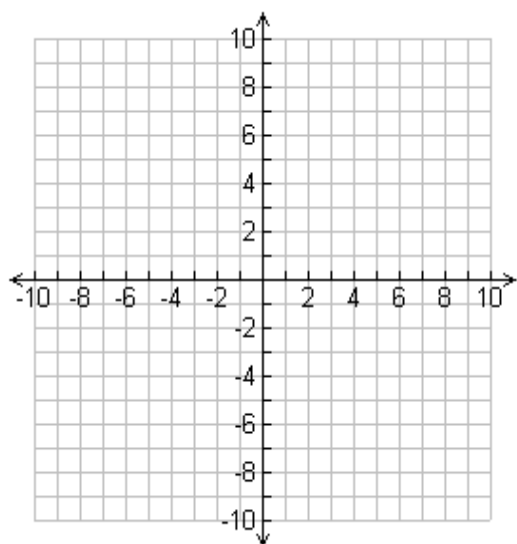
$$g(x) = -\frac{1}{2}x$$

- The slope of the line is \_\_\_\_\_.
- The y-intercept of the line is \_\_\_\_\_.
- Graph the linear equation.



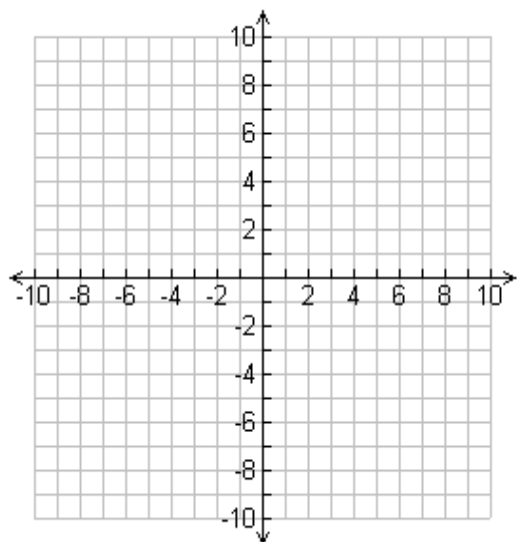
12. Graph the following equation in a rectangular coordinate system.

$$y = -4$$



13. Graph the following equation in a rectangular coordinate system.

$$x = -4$$

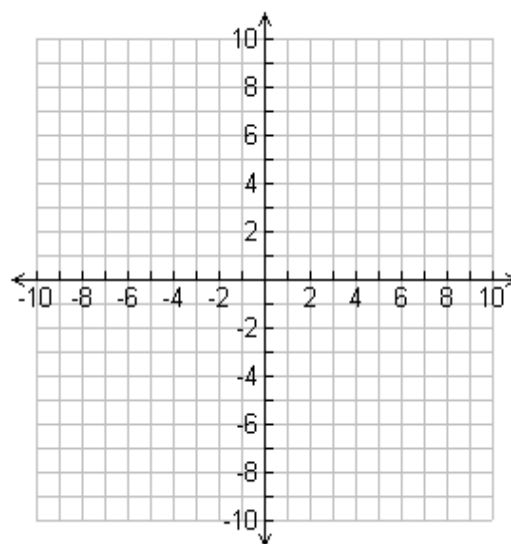


14. Rewrite the given equation in slope-intercept form and then graph the line.

$$9x + y + 3 = 0$$

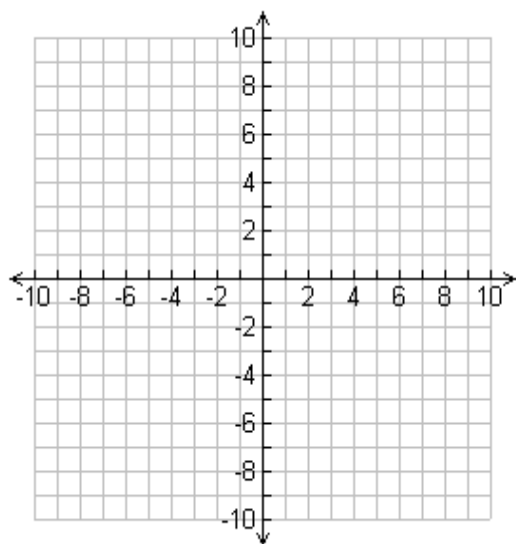
- a. What is the equation in slope intercept form?

- b. Graph the linear equation.



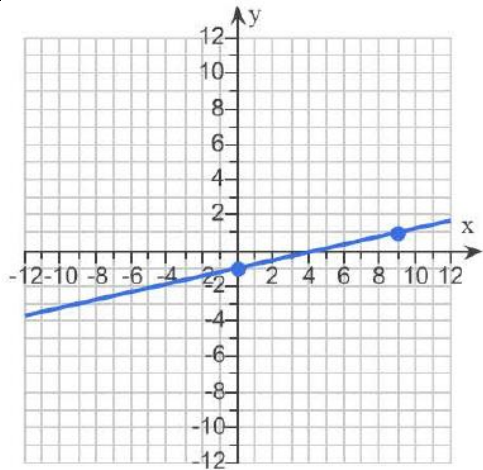
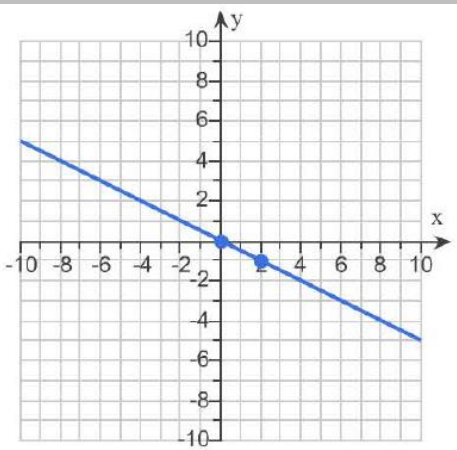
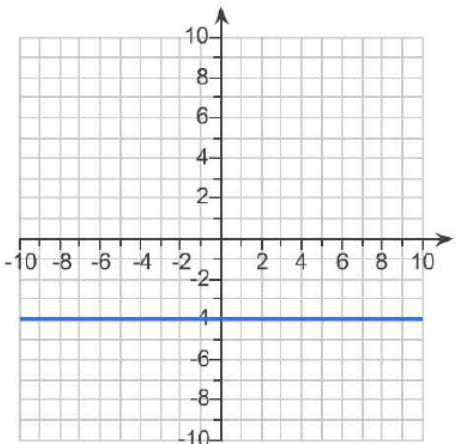
15. Use intercepts to graph the equation.

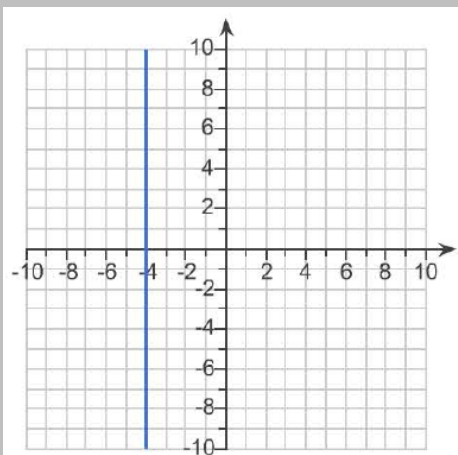
$$7x - 6y - 42 = 0$$



ANSWER KEY:

1.	The slope is 4 and the line rises from left to right.	
2.	The slope is 0 and the line is horizontal.	
3.	The slope is 3 and the line rises from left to right.	
4.	The slope is undefined and the line is vertical.	
5.	Point-Slope Form	$y - 4 = 3(x - 5)$
	Slope-Intercept Form	$y = 3x - 11$
6.	Point-Slope Form	$y + 2 = -7(x + 1)$
	Slope-Intercept Form	$y = -7x - 9$
7.	Point-Slope Form	$y - 3 = 3(x - 1)$
	Slope-Intercept Form	$y = 3x$
8.	Point-Slope Form	$y + 1 = \frac{7}{4}(x + 4)$
	Slope-Intercept Form	$y = \frac{7}{4}x + 6$
9.	a.	The slope is 3.
	b.	The intercept is 6.
	c.	

10.	a.	The slope is $\frac{2}{9}$ .
	b.	The intercept is $-1$ .
	c.	
11.	a.	$-\frac{1}{2}$
	b.	0
	c.	
12.		

13.		
14.		$y = -9x - 3$
		